

Chapter 3

FUNCTIONAL GOALS AND EQUIPMENT RESOURCES FOR PERSONS WITH SPINAL CORD INJURY/DISEASE

There is so much equipment available for persons with spinal cord injuries that it can be overwhelming. Having the right equipment can mean the difference between being independent and dependent. It is extremely important to choose the right equipment. The best way to do that is to consult a professional who has experience in rehabilitation technology.

It is important to realize that this chapter is only a guide. The resources listed are only a few of the ones available. Mention of specific organizations, sources and vendors does not constitute endorsement by the Spinal Cord Injury Association or its Connecticut Chapter. However, this chapter is intended to provide information about commonly used equipment and sources for obtaining information and/or equipment.

See Table 1 for muscle function, functional goals and potential equipment needs based on level of injury or disease. These will vary based on many factors including incompleteness of injury, physical abilities, overall health and interests.

The Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) offer a credentialing exam for assistive technology service providers including both practitioners (therapists and doctors) and suppliers (vendors). Although this certification is relatively new and should not be your only consideration, it is one way to identify experienced professionals.

It is important to fully understand what your insurance will pay for. Always consult your case manager to determine your insurance's durable medical equipment benefits and if any modifications can be made in your policy.

FUNCTIONAL GOALS AND POTENTIAL EQUIPMENT FOR PERSONS WITH SPINAL CORD INJURY/DISEASE

The following list of equipment is to serve as a guideline only in the determination of equipment needs of individuals with various levels of injury. Most individuals will not need all of the items listed. On the other hand, the individual may have specific needs not accounted for here. This represents only a summary of equipment considered reasonable for respective levels of injury.

| <i>Injury Level</i> | <i>Muscle Function</i> | <i>Goals:</i> | <i>Potential Equipment:</i> |
|----------------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C2 C3 | | Same as C4 | Two ventilators or phrenic pacer Same as C4 |
| C4 | Neck Control Scapular | Manipulate electronic wheelchair with appropriate controls. Use of environmental controls. | 1. Electric wheelchair 2. Elevator 3. Ramp 4. Lightweight travel w/c. 5. Mouth-stick for communication 6. Collapsible commode chair or bowel training wheelchair 7. Electric hospital bed 8. Over bed table 9. Environmental controls 10. Patient lifter: car or home 11. Self-aid devices: mouth-stick. 12. Voice-activated computer |
| C5 | Partial Shoulder control Partial elbow flexion | Propel wheelchair with assistive devices. Swivel bar transfer or sliding board w/ assistance Independent in light hygiene and feeding activities w/ devices. Adapted sports: swimming, archery, bowling. | 1. Wheelchair w/ modification 2. Pushing gloves 3. Hospital bed-regular or electric with trapeze or swinging straps. 4. Patient lifter: car/home—sliding board 5. Roll-in shower or commode 6. ADL equipment 7. Hand splints. 8. Aids for feeding. 9. Mobile arm support. 10. Over-bed table. 11. Overhead sling. |
| C6 | | Independent in dressing activities & transfer activities. Driving with adapted equipment, Adapted sports | 1. Wheelchair w/ mods as needed 2. Shower/commode wheelchair 3. Hospital bed 4. Transfer board 5. Self-aid devices for urinary management 6. Functional splints |
| C7 and C8 | Shoulder depression. Elbow extension | Independent in eating with adapted devices. Independent in | 1. Wheelchair modifications as needed 2. Shower wheelchair |

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|----------|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | and some hand function. | application of condom drainage system or catheterizing. Independent transfers: car, bed, commode chair and/or tub stool. Assisted bowel care. | <ol style="list-style-type: none"> 3. Possibly a hospital bed. 4. Raised toilet seat, drop arm commode. 5. Transfer tub bench. 6. Car transfer board. 7. Standing frame. 8. Self-aid devises. 9. Leg bag straps. 10. Grab bars around bathroom. 11. ADL equipment. |
| T1 – 5 | Normal upper extremity muscle function. | Total wheelchair independence. Independent transfer from wheelchair to tub. Move from wheelchair to floor and back. Assisted standing activities. All w/c sports. | <ol style="list-style-type: none"> 1. Wheelchair 2. Transfer tub bench 3. Drop arm commode 4. Raised toilet seat 5. Standing frame 6. Grab bars around bathroom. 7. ADL equipment 8. Sliding board. |
| T6 – 10 | Partial trunk stability. | Exercise ambulation with bilateral leg braces & crutches. | <ol style="list-style-type: none"> 1. Same as T1 – 5 2. Long leg braces 3. Standing frame 4. Bathroom grab bars. |
| T11 – L1 | Trunk stability | Possible household ambulation. | <ol style="list-style-type: none"> 1. Wheelchair 2. Shower chair 3. Raised toilet seat 4. Bracing for ambulation 5. Bathroom grab bars |
| L2 | Hip flexors | Limited ambulation. | Same as T11 – L1 |
| L3 – 4 | Abductors and quadriceps | Community ambulation with long or short leg braces and crutches or cane. | <ol style="list-style-type: none"> 1. Wheelchair 2. Bracing for ambulation 3. Shower chair 4. Bathroom grab bars |
| L5 – S2 | Hip extensors and abductors. Knee flexors. Ankle control. | No equipment needed if plantar flexion is enough for push-off and there is no footdrop. | <ol style="list-style-type: none"> 1. Ambulation aids |

WHEELCHAIRS

Selecting a wheelchair can be difficult due to the tremendous variety and options on the market today. Because everyone has individual needs, it is highly recommended that great care be taken when choosing a wheelchair. Try several types of equipment before making decisions and make sure that you choose experienced therapists and vendors to assist and educate you in this process.

Insurances require that a person be evaluated by a therapist and/or attend a clinic before purchasing a wheelchair or other seating equipment. Hospitals that provide equipment evaluations in the area include:

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- **Gaylord Specialty Health Care, Gaylord Hospital**
 - PO Box 400, Gaylord Farm Rd.
 - Wallingford, CT. 06112
 - 203-284-2875 x 3388
 - www.gaylord.org
- **Connecticut Children's Medical Center**
 - Washington Street, Hartford, CT.
 - 860-545-8600
 - www.connecticutchildrens.org
- **Hospital for Special Care**
 - 2150 Corbin Ave.
 - New Britain, CT 06053
 - 860-832-6258
 - www.hfsc.org
- **Easter Seals Greater Hartford and Rehab. Center, Inc.**
 - 100 Deerfield Rd.
 - Windsor, CT
 - 860-714-9500
 - www.hartford.easterseals.com
- **Lawrence and Memorial Hospital**
 - 365 Montauk Avenue
 - New London, CT 06920
 - 860-442-0711 x 2355
 - www.lmhospital.org
- **Mt. Sinai Rehabilitation Hospital**
 - 490 Blue Hills Ave.
 - Hartford, CT 06112

- 860-714-3500
- www.stfranciscare.org

Generally, a purchase for a wheelchair occurs once every five years or if there is a significant change in your medical status. Hence, it is important to choose the correct wheelchair the first time and to make sure that the wheelchair lasts. The following information will give you some ideas in regards to wheelchairs and wheelchair maintenance.

Manual wheelchairs are self-propelled and designed for persons with adequate arm, hand and/or leg strength, endurance and balance to push the chair on various surfaces. Electric or Power Wheelchairs have motors and are propelled using an electronic switch. Power wheelchairs are needed if the person does not have enough upper body strength, arm function, balance and/or endurance to safely or independently propel a manual wheelchair. A type of hand control or joystick operates most power wheelchairs. However, there are many other options available to propel the wheelchair including head controls, eye scan systems, sip and puff (breath controls) and even tongue-controlled systems.

There are numerous wheelchair-seating systems available to those who need assistance in maintaining correct and an upright sitting posture in the wheelchair. Good posture helps to conserve energy, prevent deformities, allow for adequate pressure relief, assist with skin maintenance, improve breathing, and allow better use of your arms and hands. Seating systems range from simple to complex, and should be assessed by an experienced professional. Positioning belts, solid chair backs, lateral supports, recliners, tilt-in-space, and cushions can all be a part of a seating system, but features are based on the individual needs.

Wheelchair cushions are essential in helping to prevent the formation of pressure sores. Cushions can also play an important role in good positioning. There are many brands and types of cushions that are usually air-filled, fluid-filled, gel-filled, foam, or a combination of materials. All cushions have both positive and negative aspects, and it is up to you and your provider to choose the best one for you.

Maintenance and repairs are as important with a wheelchair as they are with a car! Preventive maintenance and repairs will result in a properly

functioning, safe, and long-lasting wheelchair. For more specific information, consult your owner's manual, warranty, therapist or your equipment vendor.

GENERAL WHEELCHAIR CARE

Your wheelchair is an expensive piece of equipment and will require you to follow the maintenance instructions in the owner's manual. Here are some maintenance tips:

- **Warranty:** Fill in the warranty information, make a copy for your records, and return the card to the manufacturer.
- **Metal Parts:** Wipe off with a soft cloth at least once a week. Clean off any mud or debris. You may polish the metal parts with car wax.
- **Upholstery:** Use tape to close small tears, this will prevent the tear from getting worse. Sponge the upholstery with a damp cloth once a week. For solid backs, inspect hardware and attachments often and keep clean with dry cloth.
- **Tires:** Clean occasionally with a damp cloth. If your chair has pneumatic tires, keep the correct amount of air in them (as per manufacturer's recommendations). Also, airless inserts are available which require no air and are easy to maintain.
- **Large Wheels:** Occasionally tighten screws on the hand rims. Keep hardware free from dust and inspect for rust. Tighten wheel if it develops side-play. Make sure all wheel bearings are properly greased.
- **Frame:** Grease extra long center bolt on the X-brace every two months. DO NOT oil hinges or clasps that control folding footrest or leg rest panel.
- **Brakes:** Check brake action in all power chairs daily. Inspect manual brakes for rust or loosening attachments.
- **Safety Hints:** Always replace or repair worn or missing parts. Make sure handgrips are always tight. Be sure screws holding upholstery are secure. Call your wheelchair vendor before attempting any repairs.

BRACES & ORTHOTICS

Braces have many uses for the person with a spinal cord injury. Orthotics may allow a person with a spinal cord injury the ability to ambulate, transfer, prevent contractures and maximize a person's functional mobility status. The attending physician or physical therapist will recommend the appropriate orthotic. Other orthotics, such as body jackets, can be used to help maintain an upright position. Splints can be used to help properly support both arms and feet. Other braces assist with maximizing arm and hand function.

Custom orthotics are made by orthotists. Orthotists in the state of Connecticut need to be licensed through the state. An orthotist usually works in conjunction with a physician and/or therapist to provide the optimal bracing needs for those with spinal cord injuries.

- **Plastic:** Clean once a week with mild soap and water. Call your therapist or orthotist if the plastic buckles in any area (this will happen most often at areas of highest stress).
- **Metal Uprights:** Check for proper alignment. Uprights should never cause redness on the skin.
- **Joint Mechanisms:** If your orthosis has a joint mechanism, keep it clean from dirt so that it maintains its ability to function.
- **Velcro:** Replace when necessary or when it shows wear. Velcro does collect dirt and dust so keep clean. Close Velcro over itself when not in use to prevent dirt and dust collection.
- **Skin:** Check your body each day for red areas after removing orthotics or splints. An unchecked red area can easily develop into an open sore. Any area that remains red fifteen minutes after the orthotic is removed should be immediately reported to the orthotist.
- **Repairs:** Contact the vendor for repairs on orthotics. Keep their phone number in an easily accessible location. Your therapist should also be able to repair a splint.

RAMPS

Ramps are necessary for getting into any building with stairs. The general rule is to build one foot of ramp for every one inch of height on the stairs. Landings should be at least five feet by five feet. Make sure the ramp has rails on both sides for safety. When choosing a carpenter, look for good references and knowledge of ramp building. Ask a lot of questions and get multiple quotes.

BATHROOM EQUIPMENT

Bathroom equipment ranges from something as small as a catheter to as large as a transfer-tub bench or a commode. The purchase of bathroom equipment should not be taken lightly, as it can be expensive and in most cases will not be covered by insurance. Discuss your needs, including your home environment, with a physician or therapist before making choices. Equipment can be purchased from medical supply stores, catalogs, equipment vendors or even local department and home improvement stores. Please refer to the partial list of area vendors at the end of this chapter for more information.

ASSISTIVE TECHNOLOGY

Assistive technology is any device, implement or item, including vehicle and home modifications, used by people with disabilities to increase, maintain or improve their functional capabilities to enhance their quality of life through greater independence. AT can be high-tech or low-tech, expensive or not, medical or non-medical in nature. Simply put, AT is a tool that can assist people with disabilities to improve functional capacities and quality of life. AT can come into play in various contexts including special education, vocational rehabilitation, employment, health coverage, and access to businesses and government services.

An Assistive Technology device means any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities. An assistive technology service means any service that directly assists an individual with a disability in the selection, acquisition, or use of an assistive technology device. An AT service includes evaluation of the AT needs of an individual; purchasing, leasing, or otherwise providing for the acquisition of AT

devices; selection, designing, fitting, customizing, adapting, applying, maintaining, repairing, or replacing AT devices; coordination and use of necessary therapies, interventions or services with AT devices such as services associated with education and rehabilitation plans; training or technical assistance for the individual and if appropriate, family members, guardians, advocates, professionals, employers, or others who provide services to, employ, or are otherwise substantially involved in the major life functions of individuals with disabilities. AT is broadly defined by federal law. "Assistive technology" means technology designed to be utilized in an assistive technology device or assistive technology service.

ENVIRONMENTAL CONTROL UNITS

Environmental Control Units (ECU's) electronically assist people who cannot independently access buttons and switches in their home or workplace. ECU's can range in type and size, but are generally a single switch remote control for a number of objects. ECU's can open doors, answer or dial telephones, operate bed controls or home entertainment systems, control temperature and access computers. Use of the mouth, head, voice, eyes, or other parts of the body can activate the control switches. Technology has evolved so much in recent years that it is difficult to give specific manufacturers. Contact your doctor, therapist or local vendor for more information.

CT VENDERS FOR HOME CARE/ADL EQUIPMENT & TECHNOLOGY

The following is a partial listing of adaptive equipment vendors within the State of CT. This is not an all-inclusive list of vendors who supply equipment for individuals with spinal cord injuries. Please refer to your local telephone book for other companies within your area.

Advanced Home Medical Supply
43 South Main Street
West Hartford, CT 06107
860-523-1076
www.advancedmedicalsupplies.com

All Med-Health Care
101 North Plains Industrial Road

Wallingford, CT 06492
203-284-3443

American Home Patient
150 Production Court
New Britain, CT 06051
860-223-8325

Apria Health Care
40 Sebeth Drive
Cromwell, CT 06416
860-613-4900
www.apria.com

Numotion
1111 Cromwell Avenue
Rocky Hill, CT 06067
860-761-0700
www.numotion.com

Connecticut Orthopedic Service
2408 Whitney Avenue
Hamden, CT 06518
203-626-0179
www.ct-ortho.com
for office location near you visit their website

Genox Homecare
22 Shepard Drive
Newington, CT 06111
860-570-1010
www.genox-homecare.com

Graeber Medical
172 West Main Street
Meriden, CT 06451
203-235-6305

A2Z Home Medical Supplies
170 Flanders Road
Niantic, CT 06357
860-739-1316
www.A2Zhomehealth.com

Bullock Access, LLC
100 Pitkin Street
East Hartford, CT 06108
860-870-7444
www.bullockacccess.com

Evis Medical Equipment

141 South Street Suite A
West Hartford, CT06110
860-296-3565
www.evismedical.com
To find locations go to their website

Hanger Prosthetic and Orthotics
46 Wells Road
Wethersfield, CT 06109
860-529-3350
www.hanger.com
To find a clinic visit their website

Sure Hands Lift & Care Systems, Inc.
410A Queen Street, Suite 368
Southington, CT 06489
860-479-9133
www.liftandcaresystems.com

Harvest Medical
461 North Main Street
Southington, CT 06489
860-621-9166

Lincare
10 Grassmere Aveue
West Hartford, CT 06110
860-236-4586
www.lincare.com
To find locations go to their website

Hudson Seating & Mobility
151 Rockwell Road
Newington, CT 06111
860-666-7500
www.hudsonmobility.com

Hudson Accessibility Solutions
28 Mashamoquet Rd, Ste 101
Pomfret Center, CT 06259
860-821-5100
www.hudsonaccess.com

Kayes Home Health Care

679 East Main Street
Meriden, CT 06450
203-237-8997

National Seating and Mobility

10 Liberty Way
Niantic, CT 06357
860-739-3444

www.nsm-seating.com

New Britain Medical Supplies

39 Brook Lawn Street
New Britain, CT 06052
860-224-9017

Pelton's Home Health Care Center

647 Silas Deane Highway
Wethersfield, CT 06109
860-529-6305

www.pelton's.com

HOW DO I PAY FOR EQUIPMENT & SERVICES I NEED?

In addition to your medical insurance, if you work with an insurance case manager they may be able to expand your equipment options. You may be able to get assistance from the following: The State of Connecticut Workers' Compensation Commission, The Bureau of Rehabilitation Services, or contact the Connecticut Association of Centers for Independent Living/Home. Some benefits will depend on your need or if it is related to a vocational goal.

The following is a partial list of items you may be able to rent: stairway lifts, standard wheel chairs, transport wheel chairs, lightweight wheel chairs, heavy duty wheel chairs, extra heavy duty wheel chairs, Portable ramps, Hospital beds, Patient hydraulic lift, Overbed tables, Scooters, knee walkers, commodes, nebulizers, breast pumps and cushion lift chairs. In addition these programs may be able to provide individuals with disabilities various types of mobility equipment.

Some devices may be low-cost and easy to obtain. Used equipment is sometimes available. (Many people post ads in magazines related to various disabilities to both buy and sell. You may need to make a large financial investment. You may pay for equipment using personal funds, private insurance, public programs when appropriate or donations from civic organizations when available. In addition some organizations and home care agencies have small loan closets or small grants to assist with funding. Some people have fund raisers. Contact each program for your own individual needs.

PUBLIC EQUIPMENT PROGRAMS

If you can't use these options, you may apply for the low-interest loan from the CT Tech Act Project sponsored by People's Bank, the State of Connecticut and project funds. Some equipment can be rented instead of purchased. This equipment is at no cost and/or at little cost to the person.

- **Hospital for Special Care Special Care Equipment Exchange**, Contact person: Duncan Murdoch, 860-832-6259.
- **Special Needs Medical**, Consignment, W/C, Assist. devices, Bath equip 203-573-1555
- **The New England Assistive Technology (NEAT) Marketplace** This is the place to come for equipment that makes life more accessible. At NEAT, you can try it, buy it, or donate it. www.neatmarketplace.org. . Call 866-526-4492 toll free in Connecticut or, 860-243-2869 in the Hartford area or email at info@neatmarketplace.org.

NEAT is about access: access to information, to products and equipment, and to the manufacturers and vendors of equipment. The New England Assistive Technology (NEAT) Marketplace was formed because limited access to equipment and devices that can minimize the effects of disabilities is, in itself, a disability.

NEAT was established to provide information and access to equipment and devices that can change the lives of people of all ages, with all types of disabilities, both temporary and permanent. The new headquarters building of the NEAT Marketplace provides 25,000 square feet of space for product demonstrations, expos, classes, computer use, research and equipment restoration. NEAT is located on the corner of Holcomb and Coventry Streets in Hartford, Connecticut. It is open Monday to Friday 8:30am-4:30pm, and the first Saturday of every month from 9:00am-2:00pm. Other hours are available by special arrangement. 866-526-4492 toll free in Connecticut or 860-243-2869 in the Hartford area or email at info@neatmarketplace.org.

THE CONNECTICUT TECH ACT PROJECT

The Connecticut Tech Act Project provides information and advocacy services to you regarding assistive technology issues. The project's goal is to make sure that Connecticut's residents (all ages) with disabilities get access to assistive technology. The project is a federally funded program administered by the Rehabilitation Services Administration.

How Can This Project Help Me? You can learn what technology is available, who makes the technology, how much it costs and how to pay for the equipment. You can receive updates on federal and state laws regarding disability programs that may affect you. You can also receive advocacy services to help you voice your concerns when seeking assistive technology.

For more information, contact the:
Connecticut Tech Act Project
BRS, Department of Social Services
860-424-4871 (Voice)
800-537-2549 (Voice/TTY)
Web site: www.techactproject.com.

VAN PURCHASE, RENTAL & MODIFIED VEHICLES

The following is a partial listing of resources for information on vehicle modifications, van rentals, ramping, licensing and driver training programs.

Airport Leasing, Inc.
PO BOX 543
East Granby, CT 06026
860-653-6093
Wheelchair accessible van rentals

Advanced Wheels of Technology
33 Bradley Park Road
East Granby, CT 06026
860-653-8064
www.advancedwheels.com
Van sales and modifications of new and used cars.

Ride-Away Corporation
104 Pitkin Street
East Hartford, CT 06108
860-282-8202
www.ride-away.com
Van sales and modifications of new and used cars.

American Ramp Systems 1-800-649-52 *Free home evaluation anywhere in US*

Chrysler Corp Automobility Program
www.chryslerautomobility.com
Rebates offered on adaptive equipment.

Ford Mobility Motoring Program
www.fordmobilitymotoring.com
Rebates offered on adaptive equipment.

General Motors Mobility Program
www.gmmobility.com
Rebates offered on adaptive equipment.

Honda Customer Mobility Assistance
www.automobiles.honda.com/information/mobility-assistance.apex
Rebates offered on adaptive equipment.

CT Dept. of Motor Vehicle Handicapped Training Unit

60 State Street, Rm 1093
Wethersfield, CT 06109

Easter Seals Mobility Center

158 State Street
Meriden, CT 06450
203-237-7835

www.easterseals.com/waterburyct/our-programs/mobility-center/

Wheeler Accessible Van Rental

800-456-1371

www.wheelersvanrentals.com

Premier Accessible Van Rental

866-744-8267

www.newenglandpremiervanrental.com

Gaylord Specialty Healthcare

PO Box 400
Wallingford, CT 06492
203-284-2875

www.gaylord.org

Wheelchair Getaways

Accessible Van Rental Locations

Western CT
800-228-0185

- You can contact any of the resources above or read articles like “How to Get a Vehicle Modified” available at <http://www.atnet.org/resources/resources-funding/vehicle-mod.php>.
- It may also be possible for some people to purchase portable hand controls which can be attached easily and can fit in your suitcase.

ON-LINE INFORMATION

There are a number of web sites available for gathering information.

ABLEDATA

8455 Colesville Road, Suite 935

Silver Spring, MD 20910

www.abledata.com

1-800-227-0216

United Cerebral Palsy Associations of New Jersey, Inc.

354 South Broad Street, Trenton, NJ 08608

annettbart@aol.com

609-392-4004 x 530 (voice)

609-392-7044 (TTY)

Access Travel Center

www.accesstravelcenter.com

DisabledDealer.com

www.disableddealer.com